



**massDOT**  
Massachusetts Department of Transportation



# Agenda

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## Welcome & Introduction

- Terry McCarthy, GLX – MBTA

## GLX Noise Analysis and Mitigation

- John Weston, HMMH

## Construction Update

- John West, GLXC



# Noise

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## GLX Noise Analysis and Mitigation

➤ John Weston, HMMH

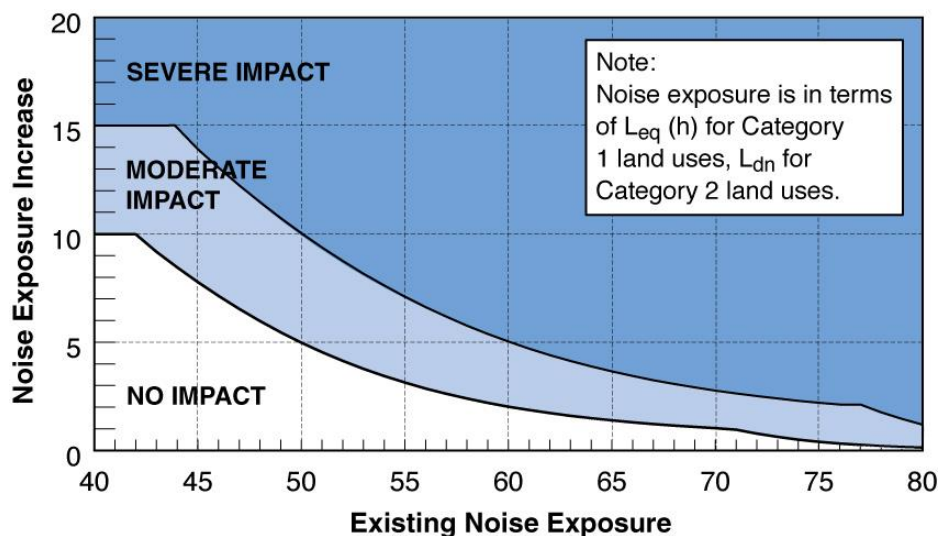


# GLX Noise Mitigation

## FTA Guidelines for Assessing Noise Impact

Noise impact is assessed by comparing existing noise levels to potential future increases in noise

- Future noise levels take into account:
  - ☐ Number of train events
  - ☐ Whether events occur during day or night
  - ☐ Noise level of each train event
- Existing noise levels are generally 65 to 80 Ldn



- Prior to mitigation, noise conditions would generally increase:
  - A few decibels where there are existing commuter trains
  - Approximately 10 dB in areas where there are no existing commuter trains

# GLX Noise Mitigation

## Noise Mitigation Commitments

- Mitigate all severe impacts at sensitive noise receptors.
- Provide mitigation for moderate noise impacts where existing day-night sound levels (Ldn) are above 65 dBA.
- Provide mitigation for impacts with no significant outdoor land use if interior noise levels are above 45 dBA from project sources or single-event maximum noise levels (Lmax) are above 65 dBA.
- A combination of noise barriers and sound insulation will be provided to mitigate project noise impacts

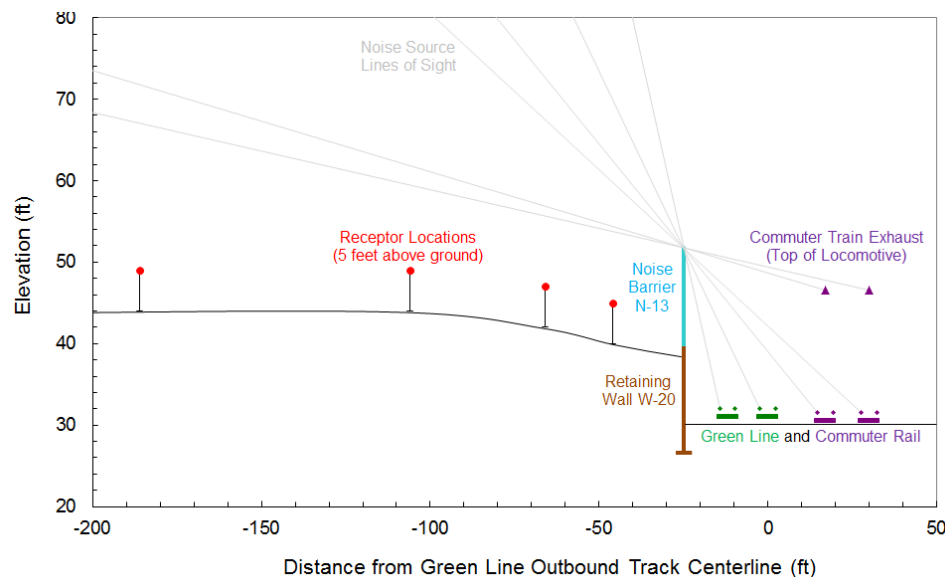


# GLX Noise Mitigation

## Noise Barriers

**Noise barriers are the preferred means of noise mitigation where feasible and effective**

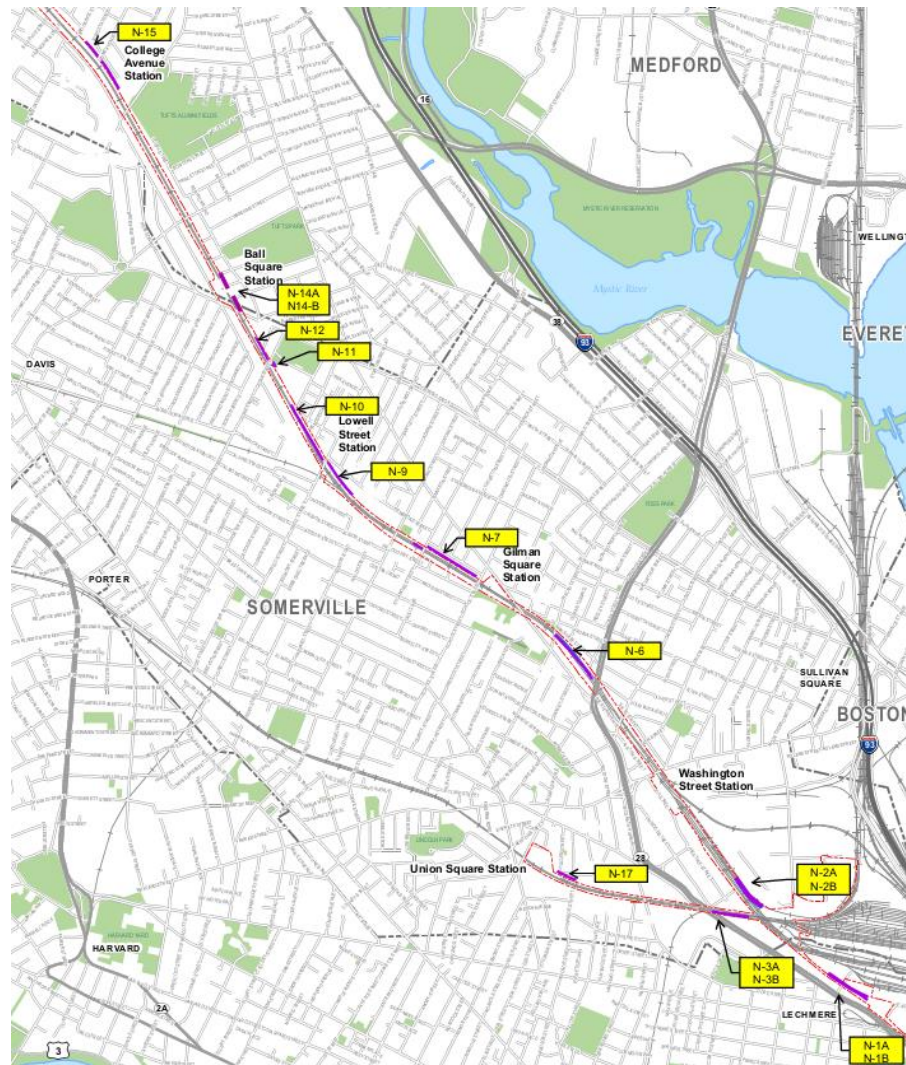
- Noise barrier design goals are to:
  - Reduce noise levels below severe criteria
  - Reduce noise 5 dB or more at impacted receptors
  - Block the line of sight from significant train noise sources
  - Minimize reflected noise by using absorptive treatment on track side of barrier



- Future noise levels are expected to be lower than existing noise levels with the noise barriers at most locations along the existing commuter lines



# GLX Noise Barriers



# GLX Noise Mitigation

## Sound Insulation

- Sound Insulation is means of noise mitigation where noise barriers are not feasible and effective.
- Sound Insulation typically consists replacing windows and doors on side of building exposed to increased noise levels. Eligibility/effectiveness depends on existing condition and configuration of the building.
- Planned approach is for the home/building owner to contract the work and MBTA to reimburse costs.
- Locations of buildings for evaluation
  - Hampton Inn (Cambridge)
  - Outside the Lines Studio (Medford)
  - 240 Pearl Street Apartments
  - 58 Sycamore Street
  - 4 Residential Buildings on Alston St.
  - 8 Residential Buildings in Auburn Ave./ Avon Place / Cross St. area
  - 19 Residential Buildings on Boston Ave. (just south of Broadway)





# GLX Noise Mitigation

## Post-project Noise Monitoring

“Monitor Noise after service starts (with the proposed mitigation in place) to evaluate whether the actual noise levels correspond with the modeled values and take appropriate corrective actions if the actual values are found to be higher than the projections.”

- MBTA will measure noise conditions after construction is complete and the service is in operation.
- A sampling of locations will be identified for measurements based on background noise conditions and land use.
- Monitoring will evaluate changes in project based noise and background noise.
- Comparisons of measured noise levels with projected noise levels and mitigation commitment levels will be conducted.
- Corrective actions will be taken where discrepancies are found

# Construction Update

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## GLX-C Construction Update

➤ John West, GLXC



# Safety Week (May 6 – 10)



***Safer Together!***



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# Broadway Bridge

## Construction Update



*Temporary shoring for foundation work on the new bridge continues on the east side of the alignment*

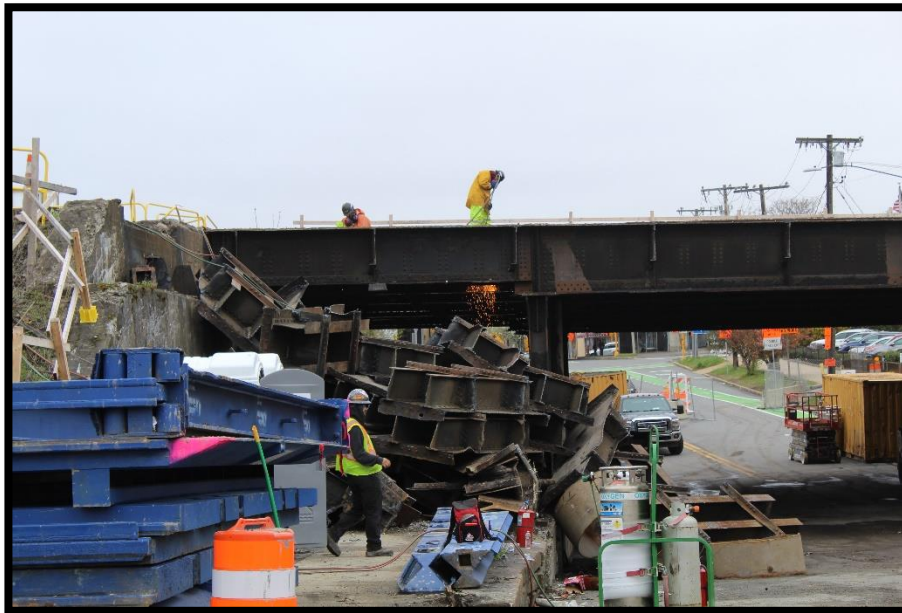


# Washington Street Bridge

## Demolition and Construction Update

Phase I Closure – April 8, 2019 to November 2019

Phase II Closure – Spring to Fall 2020



# Medford St. Bridge

## Demolition and Construction Update

- Bridge to close approximately 6 weeks early helping Somerville HS construction and GLX Project
- Outreach campaign currently underway





## Demolition Update

### Homans Building

- Demolition completed with last section of building coming down during weekend shutdown of Medford St. on Saturday, April 6.
- Debris and foundation removal completed following week.



## Demolition Update Ball Square

- Demolition, debris and foundation removal complete





# Project Status

## Construction Update

### Boston Engine Terminal (BET) Area

- Viaduct work continues with frequent night and weekend work



# Project Status

## Construction Update

### Lechmere Area

- One drilling crew will begin to mobilize later this month near the existing viaduct and Glass Factory Condominiums & AVA/Avalon Apartments and start working their way toward Water St.
- A 2<sup>nd</sup> crew is working their way from BET toward Water St.





# Project Status

## Construction Update – Walls Between McGrath Hwy – Walnut St.

- Noise Wall N-6 awaiting panel installation to start in June



# Project Status

## Construction Update – Walls Between Lowell – Cedar St.

- Drainage installation and Wall ME-2 & Noise Wall N-10 drilling underway





# Project Status

## Construction Update – Walls Between Cedar St. - Broadway

- Site prep continues for ME-2.1/ Noise Wall N-12



# Project Status

## Construction Update – Walls Between Broadway – Harvard Ave.

- Drilling for post placement at ME-2.4/noise wall N-14A & N-14B





# Project Status

## Construction Update – Walls Between College Ave. – Winthrop St.

- Posts being placed for Noise Wall N-15



# Project Status

## Moles Boston Students Day Tour of GLX Project

Wednesday, April 10

- Nearly 200 college students and Moles members
- Schools: Wentworth, UMASS Amherst, Worcester, Poly Merrimack, Tufts & Northeastern
- 30+ GLX members served as tour guides, construction station leads and support





# Project Status

## GLX Project Community Connection Team

### Spring Food Drive

- 300 pounds of food delivered to Project Soup in Somerville



The GLX Community Connections Team  
PRESENTS

*Project Soup*

**SPRING**

**FOOD DRIVE**

**MOST WANTED**  
Peanut Butter  
Toiletries  
Oil  
Coffee

HELP END HUNGER IN SOMERVILLE

\*BRING UNEXPIRED - NONPERISHABLE FOOD ITEMS\*

**FOOD DRIVE** **MAR 22** **APR 18** **FOOD DRIVE**

Drop Off Locations: GLXC Main Office (2nd floor lobby)  
GLX Office (3rd floor lobby)  
or 35 Charlestown St.

# Project Status

## GLX Project Community Connection Team

### Somerville Spring Cleanup

- 500 pounds of trash removed from Community Path, Somerville Dept. of Public Works, Trum Field, Innerbelt and future Union Square Station.





# Discussion

Terry McCarthy, GLXC





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GLX Community Working Group  
Monthly Meeting  
May 7, 2019

**GREEN LINE EXTENSION PROJECT  
May 7, 2019 COMMUNITY WORKING GROUP MEETING – SUMMARY MINUTES**

LOCATION OF MEETING: GLX Project Office, 200 Inner Belt Rd, 3<sup>rd</sup> Floor, Somerville, MA 02143

DATE/TIME OF MEETING: May 7, 2019; 8:30 AM – 10:00 AM

**ATTENDANCE:**

CWG Members: Joseph Barr (City of Cambridge), Jennifer Dorsen (Somerville Ball Square), Dylan Manley (East Somerville), Jim McGinnis (Union Square), Laurel Ruma (College Ave), Jim Silva (Medford Ball Square)

MassDOT/MBTA: Melissa Dullea – MBTA Senior Director of Service Planning, Terry McCarthy – MBTA Deputy Program Manager of Stakeholder Engagement

GLX Constructors (GLXC): Hannah Brockhaus, Jeff Wagner

GLX Project Team: Randy Henke, Martin Nee, Joe Sgroi, John Westin

Other Attendees: Viola Augustin (City of Somerville), Suzanne Bremer (Somerville Free Press), Tim Dineen (VNA resident), Polly Pook (Brickbottom), Lynn Weissman (Friends of the Community Path)

**PURPOSE:** The GLX Community Working Group (CWG) was formed to help engage and foster communication with the communities along the GLX corridor by meeting with representative members (both residents and officials) of Cambridge, Somerville, and Medford.

**BACKGROUND:** The Green Line Extension (GLX) Project is an initiative of the Massachusetts Department of Transportation (MassDOT), in coordination with the Massachusetts Bay Transportation Authority (MBTA). The project intent is to extend existing MBTA Green Line service from Lechmere Station through the northwest corridor communities of Cambridge, Somerville, and Medford. The goals of the project are to increase mobility; encourage public transit usage; improve regional air quality; ensure a more equitable distribution of transit services; and support opportunities for sustainable development.

**PRESENTATION:**

Terry McCarthy – MBTA Deputy Program Manager of Stakeholder Engagement, gave introductions for the meeting and thanked members and the community for calls to project hotline that alerted project team to issues that were then able to be addressed.

John Westin, HMMH/GLX project team noise consultant, gave presentation on GLX noise mitigation (see slides 4-10).

Terry McCarthy closed and said that due to time limitations they could not cover the construction update that was part of the presentation (see presentation after slide 11).

## SUMMARY OF DISCUSSION/ISSUES:

A member asked if the noise measurements for the sound walls took into account the levels for two trains passing at the same time. The GLX project explained that two trains aren't twice as loud - just about 1-2 decibels louder. Measurements were taken over a 24-hour period and add up all the noise energy over the time period and average it out based on when it readings during day (noise at night weighted more heavily) to account for different noise possibilities.

It was noticed by a member that some trains are louder than others (such as older trains) and asked if this was accounted for. The project team said yes, and that when the measurements were taken the MBTA Commuter Rail fleet had a lot of older, louder trains that actually are not part of the fleet now.

It was commented how the Amtrak trains are actually a lot quieter than MBTA Commuter Rail trains.

It was asked if the project is only using the older sound analysis from the Environmental Assessment. The project said that GLXC did new sound readings in early 2018 and that the sound levels were similar to 2011 and did not change the analysis.

There was an inquiry about how noise from the trains can spread like when a train is turning around a curve, The GLX team said their analysis accounts for this.

It was inquired where the readings were taken. The project sad noise readings were taken from 15 places across the GLX corridor to account for different noises from the rail, switches and community. These measurements were taken to: 1. fully understand the noise from trains/rail and 2. fully understand noise from community.

There was an inquiry as to if noise was more dramatic when closer, like if one were standing on a GLX platform at a station and a Commuter Rail train went by and if there was much of a difference if a person were 9 feet or 20 feet from a Commuter Rail train when it went by. The project explained that all the noise receptors for sound mitigation are done to measure the impact on buildings where people sleep as well as schools and hospitals and the like. The project isn't mitigating for pedestrians or the train platforms and the sound levels for these were not looked at by MBTA. It was noted by the project that there are a lot of similar circumstances throughout the existing MBTA system where trains are passing by pedestrian commuters at high speeds.

It was asked if the difference in sound between fast and slow trains could be explained. The project explained that it would depend most on if the trains were accelerating or not as trains travelling at speed are quieter than accelerating trains. It was noted that the decibel level of slowing trains to 60 mph or 30 mph would be negligible but what would increase is the length of time a customer would be exposed to the sound – that time being longer with a slower train.

It was inquired what was meant by long time in regards to noise having a negative effect on a person. The project said an example of a long period would be a 24-hour period or hours or during working conditions (8 hours at a time) where lower but sustained noise levels would have more effect. With short periods of exposure, it is generally not about the duration, but it is about the loudness.

Certain members were concerned about the short-term impacts on customers. The project explained that there are federal regulations about noise levels of trains and that the MBTA fleet are within these regulations. The project said it can look into getting copy of these regulations to share. It was then asked if the regulations for Amtrak and freight could be shared as well.

It was asked what Ldn meant. The project said that Ldn was the day/night decibel level which is an average over a 24-hour period where 10 decibels get added to the levels of night noise (because it is more disruptive).

There was a question as to what category 1 and 2 uses were. The project explained category 1 as places where quiet is integral to the use of the place (like churches or libraries), and category 2 use is generally residential.

It was inquired if the Tufts buildings were an example of the places where indoor impacts were being taken into consideration by project (as seen on slide 5). The project said that this more applied to the Glass Factory condos and Hampton Inn in Cambridge.

It was asked where sound dampening mats were being used on the project. The project team said that they were generally being used on the viaduct.

It was asked if the noise dampening mats were being used near Burget Ave area or Brickbottom. The project team explained that mats were not designed to reduce noise, but rather for vibration – these details were still being discussed but the project could provide locations when ready.

There was a question as to how the project was able to integrate and account for other projects occurring around GLX corridor such as the new Somerville High School which would create a new noise environment for residents. The project team said that all they could analyze is the conditions/impacts from the GLX project at the time the analysis was taken. Though the team did have GLXC take a look at Cambridge Crossings buildings for reflective noise off new buildings, which there was not.

It was noted by a member that since 2011, the time of the EA noise analysis, a lot has changed in the corridor and many trees have come down. The project team explained that trees have two impacts: the first is the psychological impact and there is science behind how not seeing something makes the human brain perceive that the noise is less even if the decibels aren't significantly lower. The second impact is the actual reduction, which would require vegetation to be 100 feet wide and thick/dense enough to absorb sound before it could have an impact on reducing noise levels. So, growth of trees at Tufts did not do much for reducing actual decibel levels, but there certainly could be psychological impact from these coming down – though project can't measure this.

It was asked what the impacts were for receptors that are above the sound wall (like in an apartment building). The project team said that following federal regulations, tests are done from 5.5 feet from the ground. It may be louder in some cases for second floor dwellings because only the first floor is mitigated for. Though it was noted that for this project, certain noise walls located close the tracks do have the effect of mitigating above the first level.

It was asked if there are any other areas where project went over the minimum noise mitigation requirements. It was noted that there are some areas where sound insulation mitigation is being applied, and this was addressed later in the presentation.



It was asked if the project team noise expert had a preference for which sound wall material worked better, concrete or galvanized steel and if one absorbed better. The project team expert said that both have to mitigate noise by absorption of 70% and meet the requirement of reducing the noise through the barrier by 30%.

It was inquired what the Union Square branch noise walls were being used to mitigate. The project said there were homes behind the Walnut Street Center (Allen Street) and even though the Commuter Rail tracks did not move closer, the addition of the Green Line tracks caused a significant enough noise increase.

There was a question as to when alternate noise mitigation such as windows would be installed. The project team said the process would begin this year, and a current noise analysis is being done now. It was then asked when the project would have the results of this new analysis. The team said it would most likely be within the month.

There was a concern that if retaining and noise walls are already being built at Burget Ave area and the track design isn't complete, there could be further unknown conditions that aren't being mitigated for. The project team said that even if the tracks are moved over another foot, the current mitigation is reducing the noise by 10-11 decibels and noise would only increase by maybe .5 decibel more than thought before so the reduction would still cover to acceptable levels.

It was asked if the list show on slide 9 was the complete list as the Glass Factory Condos not on the list. The project team said that as things stand now yes this is the current list and that the Glass Factory was not getting insulated windows but specific sound barriers. The info was complete to the information the project has now.

There was an inquiry as to what the timeline would be with working with homeowners on window mitigation. The project team said it expects to have the new data in about a month to analyze and plans to start contacting/working with homeowners this summer. The process will be that the homeowner will hire a contractor and the MBTA will reimburse expenses.

It was asked if the project/MBTA will have recommendations for homeowners (materials and such). The project said that they will have specifications for homeowners and will work on having qualified contractor names to suggest.

There was a question about the historic property at 56 Sycamore and how the changing of windows/doors could affect the historic nature of the house. The project team said it was the owner of the property who chose to have this form of sound mitigation and the project would work with the historic commission on the process.

It was asked if there are federal requirements for noise on higher levels of buildings. The project team responded that the federal regulations only mitigate the property for the first floor. It was pointed out that this could be a concern for condos as the second level is not getting same mitigation as the first level. It was, however, recognized that meeting regulations spelled out in the Environmental Assessment is what the project is doing.

It was commented that even though walls weren't designed to mitigate beyond the second floor, it is anticipated that the walls will still reduce noise considerably because a great deal of the noise energy that normally travels upward will be absorbed by the noise-dampening wall



material. This evidence is anecdotal from on other projects and the project will not be collecting data on higher-level units will be affected.

It was questioned if the 3<sup>rd</sup> floor of the VNA would be getting sound-proofing windows. The project team said this has yet to be determined. It was also noted by the project team that there will be sound mitigation from the retaining walls in the area that mitigate the noise coming from the GLX trains.

It was asked if the higher elevated track at Brickbottom was an open deck meaning there would be openings in the deck for sound to travel downward. The project team said it is a solid slab with railroad ties on top.

The City of Somerville asked if the project was talking to homeowners to make sure they can identify GLX teams coming to their properties with good communication concerning the noise mitigation so that the City is not receiving worried calls from homeowners. The project team said the process will be like their efforts with the pre-construction surveys and highly visible GLX workers will wear vests.

There was a question as to what is considered a harmful decibel level. The project team said the universal standard (adopted by World Health Organization) is 45 decibel level indoors. OSHA workplace standard is 85 decibels for exposure of 8 hours - above that, workers are required to wear ear protection. Based on this, it was emphasized that standing on a platform and experiencing 80 decibels from a passing train for a few seconds would not be considered harmful.

It was asked how soon after the GLX opens and service starts would decibel levels be taken. The project team explained that when the system is complete there is still a project closeout period where the project noise monitoring will occur within 6 months to a year.

It was asked if after 2022 the MBTA would take noise measurements again. The project said no because the only change in the noise in the community would not be GLX project related. It was also noted that the MBTA does respond to changing conditions as necessitated.

It was asked if there was a range of acceptability on meeting the noise requirements. The project team said that there is a moderate/acceptable noise level that needs to be achieved.

It was inquired how many locations were sampled for GLX. The project team said 12-18 samples were taken; GLXC did around 18. This data was used together.

In response to a question the project said it would be more taking samples from even locations in the post construction analysis.

There was a question as to how the Homan's building was accounted for and how the noise levels may have changed since it is now down. The project did not mitigate for future development on the Homan's site; if a developer comes in after GLX, it is their responsibility to mitigate noise.

There was a question as to mitigation next to parks along the corridor. The project team said that Trum playground has a noise wall. It was asked if Point Sullivan playground (on Central St.) had wall and the project said they would research. At this location, the rail cut is very deep

which likely offsets the need for a sound wall. Also, a major feature of this park is a viewing stand for children to observe passing trains. A sound wall would interfere with this feature.

It was asked if the CWG could have a map of the locations the noise readings were done. The project said yes.

It was inquired when noise barrier materials and design would be seen. The project said that they discussed these topics at the last CWG meeting and that materials were still under consideration – team did not know when they would be known.

The project said it would be precast concrete panels or metal panels.

It was asked if the public could have any input on what materials are being chosen for sound walls. The project team explained that even the MBTA has limited say on what can be used – as it is up to the contractor to comply with mitigation requirements established in the Environmental Assessment document.

It was asked if there was significant difference between the two types as far as noise mitigation goes. The team said that the steel that was being looked at actually had a noise reduction absorption for about 90% (when specification was for 70%).

It was commented that noise reduction was what was most important to abutters but durability was important to the MBTA. The project said both factors are important to the MBTA and project.

Next meeting June 4, 2019 at GLX Project Office at 200 Inner Belt Rd in Somerville.